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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/531,142

04/11/2005

Katrin Zschintzsch

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321 7590 05/16/2008

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EXAMINER

WONG, EDNA

ART UNIT

PAPER NUMBER

1795

NOTIFICATION DATE

DELIVERY MODE

05/16/2008

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

uspatents@senniger.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/531,142	<b>Applicant(s)</b> ZSCHINTZSCH ET AL.	
	<b>Examiner</b> EDNA WONG	<b>Art Unit</b> 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 05 May 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 30-34, 36-38, 56-60 and 63-67 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 30-34, 36-38, 56-60 and 63-67 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>May 5, 2008</u> .   | 6) <input type="checkbox"/> Other: _____                          |

***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 5, 2008 has been entered.

This is in response to the Amendment After Final dated May 5, 2008. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office Action.

***Response to Arguments***

Double Patenting

Claims **30-34, 36-38, 40-51 and 53-74** have been provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-27 of copending Application No. 11/105,947 (Zschintzsch et al.).

With regards to claims **40-51, 53-55, 61-62 and 68-74**, the rejection on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-27 of copending Application No. 11/105,947 (Zschintzsch et al.) has been withdrawn in view of Applicants' amendment. Claims 40-51, 53-55, 61-62 and 68-74

have been cancelled.

With regards to claims **30-34, 36-38, 56-60 and 63-67**, the rejection on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-27 of copending Application No. 11/105,947 (Zschintzsch et al.) is as applied in the Office Action dated December 11, 2006, July 5, 2007 and January 3, 2008 and incorporated herein. The rejection has been ***maintained*** for the following reasons:

Applicants state that unless and until the co-pending application matures into a patent, however, the appropriateness of such a rejection cannot be ascertained.

In response, the provisional double patenting rejection is not the only rejection remaining in at least one of the applications (MPEP § 804).

#### Claim Rejections - 35 USC § 103

I. Claims **30-34, 36-38, 56-60 and 63** have been rejected under 35 U.S.C. 103(a) as being unpatentable over **WO 02/24979** ('979) and **Dietterle et al.** (US Patent No. 7,179,362 B2) in combination with **Tsuji et al.** (US Patent No. 6,607,653 B1).

The rejection of claims 30-34, 36-38, 56-60 and 63 under 35 U.S.C. 103(a) as being unpatentable over WO 02/24979 ('979) and Dietterle et al. in combination with Tsuji et al. has been withdrawn in view of Applicants' amendment.

II. Claims **64-67** have been rejected under 35 U.S.C. 103(a) as being unpatentable over **WO 02/24979** ('979) and **Dietterle et al.** (US Patent No. 7,179,362 B2) in

combination with **Tsuji et al.** (US Patent No. 6,607,653 B1) as applied to claims 30-34, 36-38, 56-60 and 63 above, and further in view of **EP 1,091,023** ('023).

The rejection of claims 64-67 under 35 U.S.C. 103(a) as being unpatentable over WO 02/24979 ('979) and Dietterle et al. in combination with Tsuji et al. as applied to claims 30-34, 36-38, 56-60 and 63 above, and further in view of EP 1,091,023 ('023) has been withdrawn in view of Applicants' amendment.

**III.** Claims **40-50, 61 and 68** have been rejected under 35 U.S.C. 103(a) as being unpatentable over **WO 02/24979** ('979) and **Dietterle et al.** (US Patent No. 7,179,362 B2) in combination with **Tsuji et al.** (US Patent No. 6,607,653 B1).

The rejection of claims 40-50, 61 and 68 under 35 U.S.C. 103(a) as being unpatentable over WO 02/24979 ('979) and Dietterle et al. in combination with Tsuji et al. has been withdrawn in view of Applicants' amendment. Claims 40-50, 61 and 68 have been cancelled.

**IV.** Claim **51** has been rejected under 35 U.S.C. 103(a) as being unpatentable over **WO 02/24979** ('979) and **Dietterle et al.** (US Patent No. 7,179,362 B2) in combination with **Tsuji et al.** (US Patent No. 6,607,653 B1) as applied to claims 40-50, 61 and 68 above, and further in view of **EP 1,001,054** ('054).

The rejection of claim 51 under 35 U.S.C. 103(a) as being unpatentable over WO 02/24979 ('979) and Dietterle et al. in combination with Tsuji et al. as applied to claims

40-50, 61 and 68 above, and further in view of EP 1,001,054 ('054) has been withdrawn in view of Applicants' amendment. Claim 51 has been cancelled.

**V.** Claims **69-72** have been rejected under 35 U.S.C. 103(a) as being unpatentable over **WO 02/24979** ('979) and **Dietterle et al.** (US Patent No. 7,179,362 B2) in combination with **Tsuji et al.** (US Patent No. 6,607,653 B1) as applied to claims 40-50, 61 and 68 and above, and further in view of **EP 1,091,023** ('023).

The rejection of claims 69-72 under 35 U.S.C. 103(a) as being unpatentable over WO 02/24979 ('979) and Dietterle et al. in combination with Tsuji et al. as applied to claims 40-50, 61 and 68 and above, and further in view of EP 1,091,023 ('023) has been withdrawn in view of Applicants' amendment. Claims 69-72 have been cancelled.

**VI.** Claims **53-55, 62 and 73** have been rejected under 35 U.S.C. 103(a) as being unpatentable over **WO 02/24979** ('979) and **Dietterle et al.** (US Patent No. 7,179,362 B2) in combination with **Tsuji et al.** (US Patent No. 6,607,653 B1).

The rejection of claims 53-55, 62 and 73 under 35 U.S.C. 103(a) as being unpatentable over WO 02/24979 ('979) and Dietterle et al. in combination with Tsuji et al. has been withdrawn in view of Applicants' amendment. Claims 53-55, 62 and 73 have been cancelled.

**VII.** Claim **74** has been rejected under 35 U.S.C. 103(a) as being unpatentable over

**WO 02/24979** ('979) and **Dietterle et al.** (US Patent No. 7,179,362 B2) in combination with **Tsuji et al.** (US Patent No. 6,607,653 B1) as applied to claims 53-55, 62 and 73 above, and further in view of **EP 1,091,023** ('023).

The rejection of claim 74 under 35 U.S.C. 103(a) as being unpatentable over WO 02/24979 ('979) and Dietterle et al. in combination with Tsuji et al. as applied to claims 53-55, 62 and 73 above, and further in view of EP 1,091,023 ('023) has been withdrawn in view of Applicants' amendment. Claim 74 has been cancelled.

### ***Response to Amendment***

#### ***Claim Rejections - 35 USC § 112***

Claims **30-34, 36-38, 56-60 and 63-67** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

#### **Claim 30**

line 16, it appears that "a cathode" is the same as the substrate recited in claim 30, line 4. However, the claim language is unclear as to whether it is.

#### ***Claim Rejections - 35 USC § 102/103***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by

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another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims **30-38 and 59** are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over **Yanada et al.** (US Patent No. 6,508,927 B2).

Yanada teaches a method for electrolytic deposition of bronze onto a substrate, the method comprising:

(i) immersing the substrate (= an object) [col. 7, line 53 to col. 8, line 13] in an aqueous (= from water-soluble) acidic electrolyte having a pH less than about 1 (col. 19, claim 12) and comprising:

(a) tin ions (col. 2, lines 45-55);

(b) copper ions (col. 2, lines 56-67);

(c) an alkylsulfonic acid (col. 3, lines 17-22);

(d) an aromatic, nonionic wetting agent (= polyoxyethylene  $\beta$ -naphthol ether) [col. 5, lines 45-58]; and

(e) an oxidation inhibitor (col. 6, lines 26-42);

wherein a ratio of tin ion concentration (= 1-99 g/L) to copper ion concentration (=



0.001-99 g/L) [col. 3, lines 1-9] is sufficient to electrolytically deposit a bronze having a copper content of greater than about 60% (= a tin-copper alloy consisting of 99.99 to 10 wt% of tin and 0.01 to 90 wt% of copper, depending on the ratio of tin ions and copper ions in the plating bath and the plating conditions) [col. 8, lines 15-29]; and

(ii) applying a current (= 0.01-100 A/dm<sup>2</sup>) [col. 7, lines 31-37] through a copper-tin anode (= the anode may be a soluble one, i.e., tin, copper, or tin alloy containing at least one metal selected from copper, gold, silver, zinc, bismuth, nickel, cobalt, and palladium) [col. 7, lines 40-52] and a cathode (= an object) [col. 7, line 53 to col. 8, line 13] at a current density (= the current density can be between 0.1 A/dm<sup>2</sup> and 100 A/dm<sup>2</sup>) [col. 5, lines 61-62] sufficient to electrolytically deposit bronze having the copper content greater than about 60% onto the substrate (= a tin-copper alloy consisting of 99.99 to 10 wt% of tin and 0.01 to 90 wt% of copper, depending on the ratio of tin ions and copper ions in the plating bath and the plating conditions) [col. 8, lines 15-29].

The alkylsulfonic acid is present in the electrolyte at a concentration of from 140 to 382 g/L of electrolyte (= at least 50 g/L) [col. 4, lines 30-38].

The alkylsulfonic acid comprises methanesulfonic acid (col. 3, line 53) in a concentration of at least about 290 g/L (= at least 50 g/L) [col. 4, lines 30-38].

The oxidation inhibitor is selected from the group consisting of monohydroxybenzene compounds, polyhydroxybenzene compounds, and a combination thereof (col. 6, lines 26-42).

The electrolyte comprises a dihydroxybenzene compound as the oxidation

inhibitor (= resorcin, catechol, hydroquinone) [col. 5, lines 13-17].

The aromatic, nonionic wetting agent (= polyoxyethylene  $\beta$ -naphthol ether) is present in the electrolyte at a concentration of from about 2 to about 40 g/L (= 0.01-50 g/L) [col. 5, lines 45-58].

Tin methanesulfonate is present in the electrolyte (= stannous methanesulfonate) [col. 2, lines 46-47] in an amount of from about 5 to about 195 g/L of electrolyte (= 1-99 g/L) [col. 3, lines 1-2], thereby providing the tin ions at a concentration of from about 2 to about 75 g/L of electrolyte (*inherent*).

Copper methanesulfonate is present in the electrolyte (= cupric methanesulfonate) [col. 2, lines 60-61] in an amount of from about 8 to about 280 g/L of electrolyte (= 0.001-99 g/L) [col. 3, lines 3-5], thereby providing the copper ions at a concentration of from about 2 to about 70 g/L of electrolyte (*inherent*).

The current density is at least about 7 A/dm<sup>2</sup> (= 0.01-100 A/dm<sup>2</sup>) [col. 7, lines 33-37].

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

I. Claims **56-58** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Yanada et al.** (US Patent No. 6,508,927 B2) as applied to claims 30-38 and 59 above.

Yanada is as applied above and incorporated herein.

Yanada teaches that the plating bath of the present invention gives a plating film of tin-copper alloy which varies in appearance from white to grayish white and from bright to matte, depending on the content of copper and the presence or absence of brightening components and/or the water-soluble metal salts. According to the present invention, a tin-copper alloy consisting of 99.99 to 10 wt % of tin and 0.01 to 90 wt % of copper, depending on the ratio of tin ions and copper ions in the plating bath and the plating conditions. The alloy composition should be selected according to the intended use. For soldering or for etching resist, the content of tin should be more than 50 wt%, preferably more than 70 wt%, and more preferably more than 90 wt%, and the content of copper should be more than 0.01 wt %, preferably more than 0.1 wt% (col. 8, lines 15-29).

The method of Yanada differs from the instant invention because Yanada does not disclose the following:

- a. Wherein the ratio of tin ion concentration to copper ion concentration is about 40/60, as recited in claim 56.
- b. Wherein the ratio of tin ion concentration to copper ion concentration is about 20/80, as recited in claim 57.

c. Wherein the ratio of tin ion concentration to copper ion concentration is about 10/90, as recited in claim 58.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the ratio of tin ion concentration to copper ion concentration described by Yanada with (a) to (c) above because:

(i) the ratio of tin ions and copper ions in the plating bath is a result-effective variable and one skilled in the art has the skill to calculate the ratio that would have determined the success of the desired reaction to occur, e.g., an appearance from white to grayish white and from bright to matte; and the alloy composition should be selected according to the intended use (MPEP § 2141.03 and § 2144.05(II)(B)); and

(ii) in the case where the claimed ranges overlap or lie inside ranges disclosed by the prior art, a *prima facie* case of obviousness exists (MPEP § 2144.05(I)).

II. Claim **60** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Yanada et al.** (US Patent No. 6,508,927 B2) as applied to claims 30-38 and 59 above, and further in view of **Tsuji et al.** (US Patent No. 6,607,653 B1).

Yanada is as applied above and incorporated herein.

Yanada teaches polyoxyethylene  $\beta$ -naphthol ether (col. 5, lines 45-58).

The method of Yanada differs from the instant invention because Yanada does not disclose wherein the aromatic, nonionic wetting agent is  $\beta$ -naphthol ethoxylate, as recited in claim 60.

Like Yanada, Tsuji teaches tin-copper alloy electroplating baths. Tsuji teaches that the nonionic surfactants may be any of the adducts of EO only, PO only or both EO and PO of the above-mentioned alkanol, phenol, naphthol and like. Specifically, preferable are ethylene oxide adducts of  $\alpha$ -naphthol or  $\beta$ -naphthol (i.e.,  $\alpha$ -naphthol polyethoxylate and the like) [col. 22, lines 7-11].

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the polyoxyethylene  $\beta$ -naphthol ether disclosed by Yanada with wherein the aromatic, nonionic wetting agent is  $\beta$ -naphthol ethoxylate because:

(i) substituting one nonionic surfactant in a tin-copper alloy electroplating bath for another would have been functionally equivalent; and

(ii) what is the difference between  $\beta$ -naphthol ethoxylate (present claim 60), polyoxyethylene  $\beta$ -naphthol ether (Yanada) and the ethylene oxide adducts of  $\beta$ -naphthol (Tsuji)?; and

(iii) it has been held that the selection of a known material based on its suitability for its intended use supports a prima facie obviousness determination (MPEP §§ 2144.06 and 2144.07).

**III.** Claims **63-67** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Yanada et al.** (US Patent No. 6,508,927 B2) as applied to claims 30-38 and 59 above.

Yanada is as applied above and incorporated herein.

The method of Yanada differs from the instant invention because Yanada does not disclose the following:

- a.     Wherein the aqueous acidic electrolyte consists essentially of:
  - a) the tin ions;
  - b) the copper ions;
  - c) the alkylsulfonic acid;
  - d) the aromatic, nonionic wetting agent; and
  - e) the oxidation inhibitor, as recited in claim 63.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the aqueous acidic electrolyte disclosed by Yanada with wherein the aqueous acidic electrolyte consists essentially of: a) the tin ions; b) the copper ions; c) the alkylsulfonic acid; d) the aromatic, nonionic wetting agent; and e) the oxidation inhibitor because for the purpose of searching for and applying prior art under 35 USC 102 and 103, absent a clear indication in the specification or claims of what the basic and novel characteristics actually are, "consisting essentially of" will be construed as equivalent to "comprising".

*PPG, 156 F.3d at 1355, 48 USPQ2d at 1355.* If an Applicant contends that additional steps or materials in the prior art are excluded by the recitation of "consisting essentially of," Applicant has the burden of showing that the introduction of additional steps or components would materially change the characteristics of Applicants' invention (MPEP § 2111.03).

- b. Wherein the aqueous acidic electrolyte consists of:
- a) the tin ions;
  - b) the copper ions;
  - c) the alkylsulfonic acid;
  - d) the aromatic, nonionic wetting agent;
  - e) the oxidation inhibitor;
  - f) an aliphatic nonionic wetting agent; and
  - g) a stabilizer/complexing agent, as recited in claim 64.

Yanada teaches an aliphatic nonionic wetting agent (col. 5, lines 45-58) and a stabilizer/complexing agent (col. 4, line 52 to col. 5, line 15).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the aqueous acidic electrolyte disclosed by Yanada with wherein the aqueous acidic electrolyte consists of: a) the tin ions; b) the copper ions; c) the alkylsulfonic acid; d) the aromatic, nonionic wetting agent; e) the oxidation inhibitor; f) an aliphatic nonionic wetting agent; and g) a stabilizer/complexing agent because:

(i) it is *prima facie* obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose. The idea of combining them flows logically from their having been individually taught by the prior art (MPEP § 2144.06);

(ii) Yanada teaches using different additive compositions for the tin-copper alloy

plating baths (col. 8 to col. 18, Tables 1-6); and

(iii) the omission of an element and its function is obvious if the function of the element is not desired (MPEP § 2144.04 (II)(A)).

c. Wherein the aqueous acidic electrolyte consists of:

- a) the tin ions;
- b) the copper ions;
- c) the alkylsulfonic acid;
- d) the aromatic, nonionic wetting agent;
- e) the oxidation inhibitor; and
- f) a stabilizer/complexing agent, as recited in claim 65.

Yanada teaches a stabilizer/complexing agent (col. 4, line 52 to col. 5, line 15).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the aqueous acidic electrolyte disclosed by Yanada with wherein the aqueous acidic electrolyte consists of: a) the tin ions; b) the copper ions; c) the alkylsulfonic acid; d) the aromatic, nonionic wetting agent; e) the oxidation inhibitor; and f) a stabilizer/complexing agent because Yanada teaches different additive compositions for the tin-copper alloy plating baths (col. 8 to col. 18, Tables 1-6).

The omission of an element and its function is obvious if the function of the element is not desired (MPEP § 2144.04 (II)(A)).



d. Wherein the aqueous acidic electrolyte consists of:

- a) the tin ions;
- b) the copper ions;
- c) the alkylsulfonic acid;
- d) the aromatic, nonionic wetting agent;
- e) the oxidation inhibitor;
- f) a brightener; and
- g) a stabilizer/complexing agent, as recited in claim 66.

Yanada teaches a brightener (col. 6, lines 43-53) and a stabilizer/complexing agent (col. 4, line 52 to col. 5, line 15).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the aqueous acidic electrolyte disclosed by Yanada with wherein the aqueous acidic electrolyte consists of: a) the tin ions; b) the copper ions; c) the alkylsulfonic acid; d) the aromatic, nonionic wetting agent; e) the oxidation inhibitor; f) a brightener; and g) a stabilizer/complexing agent because Yanada teaches different additive compositions for the tin-copper alloy plating baths (col. 8 to col. 18, Tables 1-6).

The omission of an element and its function is obvious if the function of the element is not desired (MPEP § 2144.04 (II)(A)).

e. Wherein the aqueous acidic electrolyte consists of:

- a) the tin ions;
- b) the copper ions;
- c) the alkylsulfonic acid;
- d) the aromatic, nonionic wetting agent;
- e) the oxidation inhibitor;
- f) a brightener;
- g) a stabilizer/complexing agent; and
- h) a source of alloying ion selected from the group consisting of zinc ions, bismuth ions, and a combination thereof, as recited in claim 67.

Yanada teaches a brightener (col. 6, lines 43-53), a stabilizer/complexing agent (col. 4, line 52 to col. 5, line 15) and a source of alloying ion selected from the group consisting of zinc ions, bismuth ions, and a combination thereof (col. 6, lines 54-65).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the aqueous acidic electrolyte disclosed by Yanada with wherein the aqueous acidic electrolyte consists of: a) the tin ions; b) the copper ions; c) the alkylsulfonic acid; d) the aromatic, nonionic wetting agent; e) the oxidation inhibitor; f) a brightener; g) a stabilizer/complexing agent; and h) a source of alloying ion selected from the group consisting of zinc ions, bismuth ions, and a combination thereof because Yanada teaches different additive compositions for the tin-copper alloy plating baths (col. 8 to col. 18, Tables 1-6).

The omission of an element and its function is obvious if the function of the element is not desired (MPEP § 2144.04 (II)(A)).

### ***Citations***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

**Safranek et al.** (US Patent No. 2,854,388) is cited to teach that the operation of a copper-tin alloy bath is greatly facilitated by the use of alloy anodes whose composition corresponds to the composition of the deposited plate (col. 1, lines 57-59).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to EDNA WONG whose telephone number is (571) 272-1349. The examiner can normally be reached on Mon-Fri 7:30 am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Edna Wong/  
Primary Examiner  
Art Unit 1795

EW  
May 8, 2008